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International application number: PCT/US05/012122

International filing date: 11 April 2005 (11.04.2005)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 60/561,400
Filing date: 12 April 2004 (12.04.2004)

Date of receipt at the International Bureau: 16 September 2005 (16.09.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland
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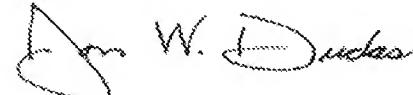
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APPLICATION NUMBER: 60/561,400

FILING DATE: April 12, 2004

RELATED PCT APPLICATION NUMBER: PCT/US05/12122

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PTO/SB/16 (5-03)

Approved for use through 04/30/2003. OMB 0651-0032

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This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

U.S. PTO
22264
60/561100
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Additional inventors are being named on the _____ separately numbered sheets attached hereto

TITLE OF THE INVENTION (280 characters max)**MULTI-SITE SNAP INJECTION SYSTEM**

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Specification Number of Pages

6

CD(s), Number

Drawing(s) Number of Sheets

1

Other (specify)

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Respectfully submitted,

SIGNATURE

Date

04/12/2004

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3153P

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MULTI-SITE SNAP INJECTION SYSTEM

The present invention is generally directed to the
5 administration of a medicament and is more particularly
directed to a multi-site injection system for dermal delivery
of a medicament.

SUMMARY OF THE INVENTION

10

A multi-site injection system in accordance with the
present invention generally includes a needle plate and a
plurality of hollow needles fixed to an outside of the needle
plate, for transport of a medicament from an inside of the
15 needle plate and into a stratum corneum of a user.

A pressurizer is provided and disposed over an inside of
the needle plate to form a cavity therebetween in
communication with the hollow needles.

20

In addition, an injection port is disposed in the
pressurizer for introducing the medicament into the cavity.

More particularly, in accordance with the present
25 invention, the pressurizer is flexible for causing uniform
transport of the medicament through the needles.

Accordingly, the pressurizer provides a means for forcing
the medicament from the cavity through needle lumens.

Preferably, the medicament comprises botulinum toxin.

BRIEF DESCRIPTION OF THE DRAWINGS

5

The advantages and features of the present invention will be better understood by the following description when considered in conjunction with the accompanying drawings in which:

10

Figure 1 is a perspective view of a multi-site injection system in accordance with the present invention generally showing a needle plate with a plurality of needles projecting therefrom and fixed to an outside surface of the needle plate;

15

Figure 2 is a perspective view of the multi-site injection system shown in Figure 1 showing a reverse side with a pressurizer disposed over an inside of the needle plate along with an injection port and a pressurized reservoir of medicament interconnected to the port via a tube; and

Figure 3 is a partial cross section of the injection system shown in Figures 1 and 2 illustrating a cavity for and between the pressure plate and an inside surface of the needle plate illustrating medicament flow from the pressure reservoir through the tube into the cavity and through hollow needles for transport of the medicament into a stratum corneum of a user.

DETAILED DESCRIPTION

With reference to Figures 1 and 2, there is shown a multi-site injection system 8 in accordance with the present invention generally including a flexible needle plate 10 having a plurality of hollow needles 12 fixed to an outside surface 16 of the needle plate 10. The needle plate 10 may be formed from any suitable material and the needles may be formed thereinto or affixed thereto in any conventional manner.

As more clearly shown in Figure 2, the system 8 may include a pressurizer 20, which may be in the form of a flexible bladder or the like, for causing uniform pressure across an inside surface 24 of the needle plate 10.

As shown in Figure 3, the pressurizer 20 establishes a cavity 26 between the pressurizer 20 and the inside surface 24 of the needle plate 10.

20

As shown in Figure 3, the inside surface 24 of the needle plate 10 may include a separate containment element 28 to facilitate construction of the system 8. Thus, as illustrated the pressurizer 20 provides a means for forcing medicament, which is preferably botulinum toxin from the cavity 26 through needle lumens 32. Spacing and orientation of the needles on the needle plate 10 is determined by the intended use of the needle plate 10 on specific user body parts, not shown.

An injection port 34 is preferably interconnected to a pressure reservoir 36 through a tube 40. Control of medicament flow from the pressure reservoir 36 through the tube and into the cavity 26 may be controlled in any 5 conventional manner.

Pressure medicament in the cavity 26 thus forces the medicament into a stratum corneum 42 of a user, not shown.

10 Pressure provided by the flexible pressurizer as indicated by the arrows 44, 46 enable uniform flow of medicament as indicated by arrows 48, 50 through the needle lumens 32 as indicated by arrows 52, 54.

15 Although there has been hereinabove described a specific multi-site snap injection system in accordance with the present invention for the purpose of illustrating the manner in which the invention may be used to advantage, it should be appreciated that the invention is not limited thereto. That 20 is, the present invention may suitably comprise, consist of, or consist essentially of the recited elements. Further, the invention illustratively disclosed herein suitably may be practiced in the absence of any element which is not specifically disclosed herein. Accordingly, any and all 25 modifications, variations or equivalent arrangements which may occur to those skilled in the art, should be considered to be within the scope of the present invention as defined in the appended claims.

WHAT IS CLAIMED IS:

1. A multi-site injection system comprising:
 - a needle plate;
 - 5 a plurality of hollow needles, fixed to an outside of said needle plate, for transport of a medicament from an inside of said needle plate and into a stratum corneum of a user;
 - 10 a pressurizer disposed over an inside of said needle plate to form a cavity therebetween in communication with the needles; and
 - 15 an injection port disposed in said pressurizer for introducing the medicament into said cavity.
2. The system according to claim 1 wherein said pressurizer is flexible for causing uniform transport of the medicament through the needles.
3. A multi-site injection system comprising:
 - 20 a needle plate having an inside and an outside;
 - a pressurizer disposed on the needle plate inside to form a cavity therebetween;
 - a medicament disposed in said cavity;
 - 25 a plurality of needles disposed on the needle plate outside each needle having a lumen in fluid communication with said cavity for transport of the medicament into a stratum corneum of a user; and
 - means for forcing medicament from said cavity through needle lumens.

4. The system according to claim 3 wherein the means for forcing medicament comprises an injection port disposed in said pressurizer.

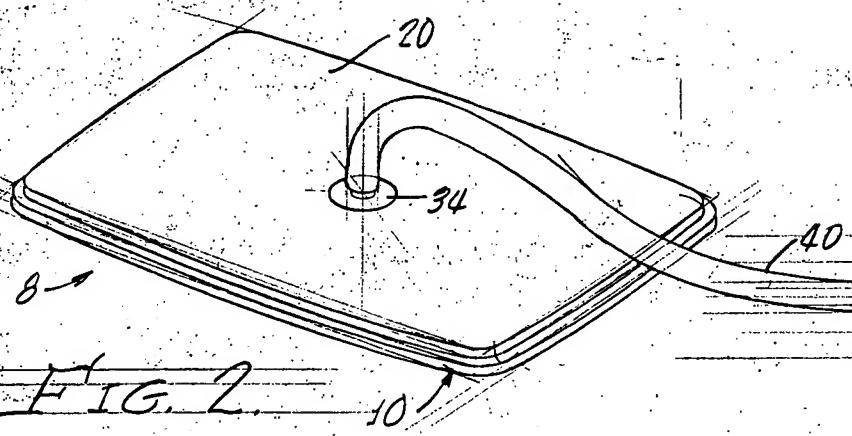
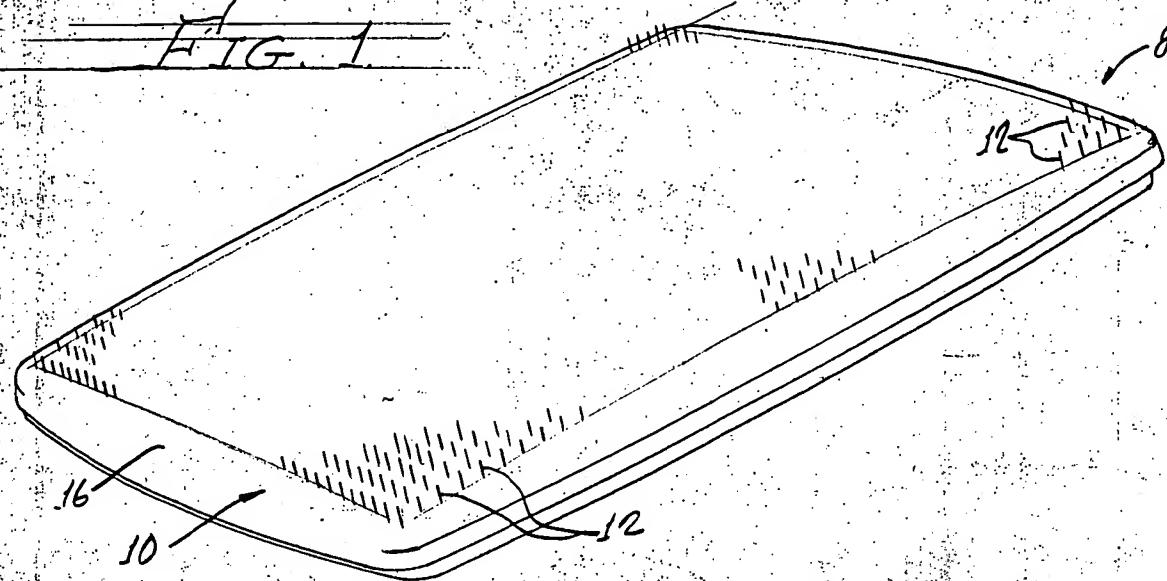
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5. The system according to claim 4 wherein said pressurizer is flexible for causing transport of the medicament through the needle lumen.

10 6. The system according to any one of claims 1-5 wherein said medicament comprises botulinum toxin.

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FIG. 1.



PRESSURE
RESERVOIR

FIG. 2.

FIG. 3.

